

IN THE CLAIMS

Please amend the claims as follows:

1 1. (original) A method for managing workload distribution in a multiple processor
2 cluster system to conserve energy, comprising the steps of:

3 classifying persistent states and connections within said cluster system according
4 to an activity referencing said persistent states and connections;

5 receiving a request to modify a workload of said cluster system;

6 determining a minimum number of processors in said cluster system for executing
7 said modified workload while maintaining said persistent states and connections;

8 determining a workload distribution within said minimum number of processors
9 that satisfies said modified workload while maintaining said persistent states and
10 connections; and

11 modifying an operation mode of a selected processor in said processors of said
12 cluster system to conserve energy while satisfying said modified workload while
13 maintaining said persistent states and connections.

1 2. (original) The method of claim 1, further comprising the step of migrating persistent
2 states and connections within said cluster system to effect said workload distribution.

1 3. (original) The method of claim 1, wherein said operation mode of said selected
2 processor is modified by setting said selected processor to an off mode.

1 4. (original) The method of claim 1, wherein said operation mode of said selected
2 processor is modified by setting said selected processor to a stand-by mode.

1 5. (original) The method of claim 1, wherein said operation mode of said selected
2 processor is modified by setting said selected processor to an active full power mode
3 from an off or a stand-by mode.

1 6. (original) The method of claim 1, wherein said step of determining said workload
2 distribution for said minimum number of processors uses a constraint based bin packing
3 algorithm.

1 7. (currently amended) The method of claim [[5]]6, wherein a particular constraint of
2 said bin packing algorithm comprises minimizing a number of processes and states
3 migrated to effect said workload distribution.

1 8. (original) A cluster system comprising;
2 a multiple processor central processing unit (CPU) having circuitry for classifying
3 persistent states and connections within said cluster system according to an activity
4 referencing said persistent states and connections, circuitry for receiving a request to
5 modify a workload of said cluster system, circuitry for determining a minimum number
6 of processors in said cluster system for executing said modified workload while
7 maintaining said persistent states and connections, circuitry for determining a workload
8 distribution within said minimum number of processors that satisfies said modified
9 workload while maintaining said persistent states and connections, and circuitry for
10 modifying an operation mode of a selected processor in said processors of said cluster
11 system to conserve energy while satisfying said modified workload while maintaining
12 said persistent states and connections;
13 a random access memory (RAM);
14 a communications adapter coupled to a communication network; and
15 a bus system coupling said CPUs to said communications adapter and said RAM.

1 9. (original) The cluster system of claim 9, further comprising the step of migrating
2 persistent states and connections within said cluster system to effect said workload
3 distribution.

1 10. (original) The cluster system of claim 9, wherein said operation mode of said
2 selected processor is modified by setting said selected processor to an off mode.

1 11. (original) The cluster system of claim 9, wherein said operation mode of said
2 selected processor is modified by setting said selected processor to a stand-by mode.

1 12. (original) The cluster system of claim 9, wherein said operation mode of said
2 selected processor is modified by setting said selected processor to an active full power
3 mode from an off or a stand-by mode.

1 13. (original) The cluster system of claim 9, wherein said step of determining said
2 workload distribution for said minimum number of processors uses a constraint based bin
3 packing algorithm.

1 14. (original) The cluster system of claim 13, wherein a particular constraint of said bin
2 packing algorithm comprises minimizing a number of processes and states migrated to
3 effect said workload distribution.

1 15. (original) A computer program product for managing workload distribution in a
2 multiple processor cluster system to conserve energy, said computer program product
3 embodied in a machine readable medium for energy management in a computer system
4 having a plurality of computation nodes, including programming for a processor, said
5 computer program comprising a program of instructions for performing the program
6 steps of:

7 classifying persistent states and connections within said cluster system according
8 to an activity referencing said persistent states and connections;

9 receiving a request to modify a workload of said cluster system;

10 determining a minimum number of processors in said cluster system for executing
11 said modified workload while maintaining said persistent states and connections;

12 determining a workload distribution within said minimum number of processors
13 that satisfies said modified workload while maintaining said persistent states and
14 connections; and

15 modifying an operation mode of a selected processor in said processors of said
16 cluster system to conserve energy while satisfying said modified workload while
17 maintaining said persistent states and connections.

1 16. (original) The computer program product of claim 15, further comprising the step of
2 migrating persistent states and connections within said cluster system to effect said
3 workload distribution.

1 17. (original) The computer program product of claim 15, wherein said operation mode
2 of said selected processor is modified by setting said selected processor to an off mode.

1 18. (original) The computer program product of claim 15, wherein said operation mode
2 of said selected processor is modified by setting said selected processor to a stand-by
3 mode.

1 19. (original) The computer program product of claim 15, wherein said operation mode
2 of said selected processor is modified by setting said selected processor to an active full
3 power mode from an off or a stand-by mode.

1 20. (original) The computer program product of claim 15, wherein said step of
2 determining said workload distribution for said minimum number of processors uses a
3 constraint based bin packing algorithm.

1 21. (original) The computer program product of claim 20, wherein a particular
2 constraint of said bin packing algorithm comprises minimizing a number of processes
3 and states migrated to effect said workload distribution.